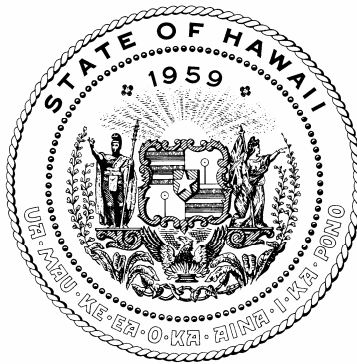


**REPORT TO THE TWENTY-FOURTH LEGISLATURE
REGULAR SESSION OF 2007**

**RELATING TO THE NATURAL AREA RESERVES SYSTEM,
NATURAL AREA PARTNERSHIP PROGRAM,
AND
THE FINANCIAL CONDITION OF THE
NATURAL AREA RESERVE FUND**



PREPARED BY

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE**

IN RESPONSE TO SECTION 195-6.6, HAWAII REVISED STATUTES

**HONOLULU, HAWAII
NOVEMBER 2006**

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LIST OF ACRONYMS

BLNR	Board of Land and Natural Resources
DLNR	Department of Land and Natural Resources
DOE	Department of Education
DOFAW	Division of Forestry and Wildlife
EMWP	East Maui Watershed Partnership
EMoWP	East Molokai Watershed Partnership
FSP	Forest Stewardship Plan
FY	Fiscal Year
GIS	Geographic Information System
HAWP	Hawaii Association of Watershed Partnerships
HRS	Hawaii Revised Statutes
HTA	Hawaii Tourism Authority
IFB	Invitation for Bid
ISC	Invasive Species Committee
KWA	Kauai Watershed Alliance
KWP	Kohala Watershed Partnership
KMWP	Koolau Mountains Watershed Partnership
LHWRP	Leeward Haleakala Watershed Restoration Partnership
MEBRP	Maui Forest Bird Recovery Project
MISC	Maui Invasive Species Committee
MLP	Maui Land and Pineapple Company, Ltd.
MoMISC	Molokai Invasive Species Committee
NARF	Natural Area Reserve Fund
NAR	Natural Area Reserve
NARS	Natural Area Reserves System
NAPP	Natural Area Partnership Program
OKP	Olaa-Kilauea Partnership
OISC	Oahu Invasive Species Committee
PKW	Puu Kukui Watershed Preserve
T&E	Threatened and Endangered Species
TMA	Three Mountain Alliance
TNC	The Nature Conservancy of Hawaii
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WMMWP	West Maui Mountains Watershed Partnership
YCC	Youth Conservation Corps

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THE FINANCIAL CONDITION OF THE
NATURAL AREA RESERVE FUND

PURPOSE

Section 195-6.6, Hawaii Revised Statutes (HRS), requires an annual comprehensive status report on the Natural Area Reserves System, and the Natural Area Partnership Program (NAPP) and the financial condition of the Natural Area Reserve Fund (NARF). This report will include, but not be limited to, a description of activities and accomplishments, compliance with Chapter 42F, HRS, analysis of the problems and issues encountered in meeting or failing to meet the objectives set forth in the management plans, status of public hunting opportunities, financial report, and plans and management objectives for the next fiscal year for the NARS Program and NAPP, an overview of the financial condition of NARF, including receipts and expenditures from NARF for the previous fiscal year, and a brief discussion of activities and goals for other programs funded through NARF.

NATURAL AREA RESERVES SYSTEM (NARS)

1. DESCRIPTION OF ACTIVITIES AND ACCOMPLISHMENTS

The statewide NARS currently consists of 19 reserves comprised of approximately 109,165 acres on five islands. NARS was established to protect the best remaining examples of native ecosystems and geological sites in the State. Annual program activities are based primarily on the long-term integrated management plans developed for each reserve and adaptive management principles, to enable effective response to changing conditions and new threats. Management policies approved by the NARS Commission and the Board of Land and Natural Resources (BLNR) continue to be the general guide for rule-making and development of management plans for NARS. While NARS is based on the concept of protecting native ecosystems, as opposed to single species, many rare and endangered plants and animals benefit from the protection efforts through NARS. Major management activities involve control of alien species, including ungulates, weeds, coqui frogs, and small predators, rare plant outplanting, monitoring, public outreach, and maintenance of existing infrastructure, such as trails and signs. Large-scale management actions, such as fences, typically go through the environmental assessment (EA) process.

NARS Commission

The NARS Commission was established by statute as an advisory body to the Department of Land and Natural Resources (DLNR) under §195-6, HRS. The Commission held six meetings over the past year. Topics ranged from commercial use and other concerns at Ahihi-Kinohi Natural Area Reserve (NAR) on Maui; special use permit request from the United States (US)

Army to conduct work in the three Oahu NAR (Kaala, Kaena, Pahole) as off-site mitigation for continued army training in Makua; approval of Waikamoi (Maui), Moomomi (Molokai), and Pelekunu (Molokai) Long Range Management Plans as part of renewal process for continued enrollment in the NAPP; approval of the Kau (Hawaii) Long Range Management Plan as part of the process for enrollment in NAPP; and proposed administrative rule changes.

Statewide activities and accomplishments

During Fiscal Year (FY) 06, NARS staff conducted ground and aerial surveys for ungulates (including sheep, mouflon, deer, goats, and pigs). Fencing continues to be an important tool to facilitate the reduction in animal populations. Over 141 miles of existing fences were inspected and maintained, and three miles of new fencing was constructed. Public hunting, staff hunting, trapping, and snaring (in remote/fenced areas) were used to reduce non-native ungulate populations; the type of control measure implemented depends on the resources available, the reserve location, terrain features, and the relative abundances of ungulates. NARS staff continues to work with hunting organizations such as the Molokai Hunting Working Group, the Pig Hunters of Hawaii, and others to accomplish control goals while minimizing conflict with the recreational hunting community.

Invasive weed control is ongoing in nearly every reserve, and priority weeds have been identified for each reserve (and sometimes for units within reserves). Volunteers provide significant manual labor to assist in weed control efforts. NARS staff also communicates with the respective island Invasive Species Committee (ISC) to prevent duplication and coordinate efforts where possible. Monitoring of rare plant populations, collection of seeds and propagules, and outplanting of rare plants are ongoing efforts to protect and enhance the rare plants found within NARS. Additional information about the accomplishments of the State's rare plant program in FY 06 follows the island descriptions below.

Maintenance of infrastructure is also an ongoing activity. Staff maintained 582 signs throughout NARS. Information and boundary signs were installed or replaced in several reserves. Approximately 125 miles of existing trails and boardwalks were maintained in various reserves, primarily for management purposes. Trail maintenance includes alien plant control along the trails to limit the spread of weeds to new areas. Over 141 miles of existing ungulate control fence were maintained with regularly scheduled inspections, and immediate repairs were made to prevent ungulate ingress and subsequent damage to the resource. Existing helipads were maintained to facilitate management and monitoring and to provide access for emergencies. 16 management shelters were maintained for long-term management actions. Over 70 miles of roads, mostly on Hawaii and Oahu, were maintained to provide hunter and management access. Road barriers continue to be maintained in the Manuka Reserve on Hawaii to prevent dumping and illegal logging activities. Vehicle barriers continue to be maintained on both sides of Kaena Point (Oahu) to protect the fragile dune ecosystem and cultural sites by prohibiting off-road vehicle use. Similarly, vehicle barriers continue to be maintained at Ahihi-Kinau to protect geological and cultural features from off-road damage.

Finally, in FY 06, NARS staff initiated revisions to the administrative rules (Chapter 13-209) relating to activities within NAR. Over the past years, there have been occasions where shortcomings in the existing administrative rules resulted in a failure to efficiently or effectively respond to threats to NAR. One example, which received a fair amount of publicity, was the difficulty regulating public use at Ahihi-Kinau and preventing illegal activity such as poaching

and squatting in lava caves. In addition, there was a need to formalize many of the policies regarding special use permit applications into the rules. The proposed rule amendments would improve and enhance the ability of DLNR to protect NARS and clarify the special use permitting process. NARS staff and Commissioners identified priority changes to be made, worked with the Department of Attorney General to draft revisions, and acted as hearing officers for the public hearing. Revised rules are anticipated to be submitted to the Governor for approval during FY 07.

Reserve activities and accomplishments by island

Major accomplishments within individual reserves during the past year include the following:

Kauai

Ongoing management in Kauai NARS includes maintenance of existing fencelines, invasive weed control, and rare plant protection through seed collection, propagation, and outplanting. In addition to work inside NARS, DLNR's Division of Forestry and Wildlife (DOFAW) staff participated in activities outside NAR, including invasive weed control and rare plant protection and outplanting, with other partners of the Kauai Watershed Alliance. Specific accomplishments within individual reserves include:

Hono o na Pali (3,150 acres; mesic and wet forest with perennial streams): monitoring and repair of three rare plant enclosure fence lines; monitoring of four species of endangered plants for regeneration and seed collection; invasive weed (palm grass and Australian tree fern) control; trail maintenance (2.5 mile); planning for potential expansion of NAR to include the higher elevation bog community. Hunters reported 134 hunting trips in Unit G (which includes Hono o na Pali), resulting in 118 goats and four pigs removed.

Kuia (1,636 acres; dry and mesic forest with perennial streams): monitoring of rare plant enclosure fence lines (totaling about one mile); repair of research rare plant enclosures; monitoring of 10 species of endangered plants for regeneration and seed collection; discovered new records for two endangered plant species; invasive weed (kahili ginger and Australian tree fern) control; trail maintenance (three miles); and awarded contract for new fencing project protecting approximately 135 acres of intact native forest. Hunters reported 2,021 trips in Unit H (which includes Kuia), resulting in 72 pigs, 102 goats, and 18 blacktail deer removed. In addition, Kuia was open to buck and doe hunting for the third year to reduce the deer population within the area.

Oahu

Ongoing management on Oahu includes weed control, ungulate monitoring, fence maintenance, rare plant propagation and outplanting, and habitat protection. Specific accomplishments within individual reserves include:

Pahole (658 acres; dry and mesic forest): initial construction on the Kapuna boundary fence project; work at the Pahole Rare Plant Facility; maintenance of existing fences; cooperation with the US Army on rare plant protection and propagation.

Kaala (1,100 acres; dryland to wet shrub forest): monitoring of invasive species' distribution (sphagnum moss); monitoring for ungulate activity.

Kaena Point (12 acres; coastal dune ecosystem): adding low-impact barriers along the hiking trail to discourage wandering into seabird (Laysan albatross and wedge-tailed shearwater) nests or monk seal basking areas; continuing small mammal predator control actions; supporting research and monitoring of seabird activity; invasive weed control and rare plant (*Abutilon menziesii*) outplanting.

Maui

Ongoing management includes fence construction, ungulate control, invasive weed control, rare plant protection, and public outreach. In addition to conservation management within NARS, Maui NARS staff participated in activities with a variety of watershed partnerships and other conservation partners. For example, NARS staff assisted East Maui Watershed Partnership (EMWP) with determining fence lines for dry forest restoration at Kahikinui, assisted the Lanai Institute for Environment with retrofitting the Lanaihale fence to prevent seabird collisions, assisted in forest bird protection by reopening Transect 2 in the Makawao Forest Reserve, and partnered with the Hawaii Wildlife Fund and National Oceanic and Atmospheric Administration to remove fishing hooks from several turtles, temporarily blocking off areas for a molting monk seal, and participating in a whale and dolphin stranding training certification program. Specific accomplishments within individual reserves include:

Ahihi-Kinau (2,045 acres; recent lava flows, anchialine ponds, and nearshore marine ecosystem): provided a seven-day a week on-site management presence at this accessible and most-visited reserve (average 700 people/day); participated in outreach opportunities, including class visits, Earth Day festivals, community meetings, and giving educational tours (855 educational hours); coordinated service projects for various groups including invasive vegetation removal, litter pickup, and net removal (415 service hours); invasive species control (pickleweed in anchialine ponds and kiawe removal along roadway to increase visibility in high illegal activity areas); executed contract and initiated fieldwork for cultural resources management plan; worked with Department of Agriculture staff to document presence of gall wasps on wiliwili in the reserve; coordinated with DLNR's Division of Conservation and Resources Enforcement (DOCARE) to address 200+ incidents of illegal activity within the Reserve.

Hanawi (7,500 acres; ohia wet and cloud forest, alpine grassland, and perennial streams): maintained 10+ miles of fenceline; maintained 2,000 acres above fencing as pig-free; in cooperation with EMWP, constructed $\frac{3}{4}$ mile of new fencing along the western boundary; reopened Transects 7, 8, and 9 for the Maui Forest Bird Survey (2006) in cooperation with DOFAW and Maui Forest Bird Recovery Project; monitored over 13,650 meters of transects for weed and ungulate activity; began reconstruction of 5400' contour fence, replacing new posts and wire on a $\frac{1}{2}$ mile section.

Kanaio (876 acres; halapepe and lama dry forest): overseeing construction of 1,500-acre deer-proof fence enclosure of the mauka section of NAR, including coordination with adjacent landowner for construction of a new 4-WD road for construction and maintenance; maintained 3 $\frac{1}{2}$ acre experimental outplanting/restoration site and outplanted 200 native trees; controlled invasive weeds (*Bocconia*, *Schinus*, and other trees) in 200 acres of the reserve; initiated efficacy monitoring study (installing 24 vegetation plots); collected wiliwili seeds for long-term storage as part of a coordinated statewide response to the gall wasp.

West Maui (6,702 acres; pili grassland, mesic, wet, and cloud forest, montane bogs, and perennial streams): Kahakuloa: maintained two miles of fencing along lower boundary; repaired vandalized fence in four locations; brushed line and delivered to field materials for another one mile section of lower boundary fencing; installed three miles of trails for ungulate monitoring and management; in cooperation with West Maui Mountains Watershed Partnership (WMMWP), replaced old and installed new strategic fences (½ mile in length) at three locations; Panaewa: in cooperation with WMMWP, monitored to ensure pigs had been eradicated from portion of NAR where incursion had taken place two years ago (no new activity observed); Lihau: collected wiliwili seeds for long-term storage as part of a coordinated statewide response to the gall wasp.

Puu Alii (1,330 acres; wet shrubland and forest with perennial streams): In cooperation with staff from Kalaupapa National Park, completed 2 ½ miles of deer-proof fence enclosing 550 acres in the upper portion of the reserve.

Olokui (1,620 acres; mesic forest, wet shrubland and forest with perennial streams): due to the near pristine condition of Olokui and its remoteness and inaccessibility (limiting threats of ungulate damage or weed invasion), active management was not necessary in FY 06.

Hawaii

NARS Big Island staff were recognized during 2006 as the DLNR Team of the Year for their exemplary work in protecting the eight reserves (82,500 acres) on the Island and for demonstrated leadership in a number of cooperative partnerships, including the Kohala Watershed Partnership, Olaa-Kilauea Partnership/Three Mountain Alliance, Big Island Invasive Species Committee, and numerous informal partnerships with neighboring landowners. In addition, NARS staff coordinated an “exchange program” with the natural resource managers of EMWP and Maui NARS staff to share field methods and develop skills. To date, two week-long exchanges have taken place where EMWP and Maui NARS crew came to the Big Island to assist in fountain grass removal and where the Big Island field staff went to East Maui to build fencing. Ongoing management includes ungulate control through public hunting, staff control, trapping, and snaring, invasive weed and small animal control, rare plant protection (reintroducing almost 5,500 plants of 20 different species), and contracting for surveys needed for appropriate management (cultural assessments, boundary surveys, etc.). Specific accomplishments within individual reserves include:

Mauna Kea Ice Age (3,894 acres; alpine community): coordinated with the Office of Mauna Kea Management to ensure protection of the unique natural and cultural features on the summit; reviewed permit requests to access NAR for research, for cultural purposes, and for educational opportunities; monitored and responded to alleged illegal commercial activity.

Puu o Umi (10,142 acres; wet forest, montane bog, perennial streams): participated in the development of the Kohala Watershed Partnership draft management plan to reflect short- and long-term needs of NAR; maintained existing fenced unit; rare plant outplanting; support for biological surveys of rare species in NAR and surrounding partnership lands.

Laupahoehoe (7,894 acres; wet forest with perennial streams): fence maintenance; rare plant monitoring and outplanting; participated in initial discussions regarding proposal to include NAR within the proposed Hawaii Tropical Experimental Forest.

Kahaualea (16,726 acres; wet forest with volcanic activity): coordinated with the County of Hawaii Fire Department to make trail and signage improvements to reduce the number of lost hikers and increase warnings; maintained trail.

Waiakea 1942 Flow (640 acres; developing wet forest): due to the remoteness and small size of this NAR and its establishment to act as a baseline for change; active management was not necessary in FY 06.

Puu Makaala (12,106 acres; wet forest): maintained fencing; ungulate control through trapping and snaring to approach zero ungulate levels (144 pigs removed); monitored transects to assess ungulate activity and weed distribution; cooperation with the Olaa-Kilauea Partnership in conducting rare plant outplanting, invasive weed control; supervised volunteers.

Manuka (25,550 acres; coastal to subalpine forest): Coordinated coqui frog response efforts at Manuka State Park and NAR, involving other DOFAW staff, DLNR's Division of State Parks staff, Big Island ISC crews, and others, developing protocols for aerial application of citric acid and for monitoring effectiveness and non-target impacts (and removing an estimated 116,000 frogs from the NAR); removal of feral animals (12 pigs, 12 goats, and sheep) in cooperation with adjacent landowners; invasive species (fountain grass) removal over 4,000 acres; secured Federal funding to acquire a private in-holding; participated in discussions with the National Park Service and Hawaiian Ocean View Estates regarding regional issues of fountain grass and fire prevention; rare plant outplanting; maintenance of fence units; and supervised volunteers.

Kipahoe (5,583 acres; mesic to wet forest): construction of 2.5 mile of fencing, enclosing 1,500 acres; rare plant protection through seed collection and outplanting; maintenance of fenced units; animal removal; invasive species control.

Rare Plant Species Restoration and Protection FY 06

The focus of the Rare Plant Program for FY 06 continued to be support habitat protection and enhancement, benefiting our native flora and fauna by utilizing Federal Section 6 grants and moneys from NARF and staff time for match. The mid-elevation rare plant nurseries on Hawaii, Kauai, Oahu, and Maui and Lyon Arboretum's micropropagation facility continue to be the heart of private and public restoration programs across the State. Over 10,000 rare plant species were outplanted on state lands in the past year, with Volcano Rare Plant Facility propagating close to 5,000 individual plants, and more than 10,000 plants are currently maintained as *in vitro* germplasm storage at the State's micropropagation facility.

An additional program being developed to prevent the disappearance of Hawaii's rarest plant species is the establishment of the Plant Extinction Prevention (PEP) Program for each major island (formerly known as the Genetic Safety Net program). This Program was initiated on Oahu three years ago to address the 182 species that are in danger of extinction within five years (plants with fewer than 50 individuals left in the wild). In FY 06, the Maui Nui PEP Program was established, covering the Islands of Maui, Lanai, Molokai, and Kahoolawe. Over the past year, the PEP Program has monitored rare species for plant health/fruit production, collected seeds/cuttings/ air layers, cross pollinated between populations, contained insect outbreaks, established small ungulate exclosures, controlled rats and slugs, eliminated alien weeds, and/or outplanted additional individual plants for 58 plant species. On Oahu, the Pahole Rare Plant Facility produced almost 2,500 rare plants for outplanting during

FY 06. Expansion of the Facility's infrastructure continues with the Army purchase of an engineered greenhouse for the dedicated use. Water collection is a high priority issue at this site and has been greatly improved with the purchase of a third 20,000 gallon storage tank and the installation of a gutter system on the main buildings for rainwater collection. The contract for fencing of Pahole NAR (Kapuna Gulch) was awarded and fence corridor clearing was begun with the Youth Conservation Corps. The coastal/lowland plant restoration program continues with outplantings at Kaena Point NAR, Honouliuli Wildlife Refuge, Diamond Head State Monument, Koko Crater Botanical Garden, Ka Iwi State Park, and at the Ewa Villages Golf Course rough.

On Maui, construction of the Kanaio NAR fence has begun and the north and east sections of the project will be completed within this calendar year. Ulupalakua Ranch provided in-kind support for this project by bulldozing 3.25 miles of fenceline that will double as road access for maintenance and management. Outplantings continue at Kanaio in a small test enclosure and control of invasive tree species is ongoing for 200 acres within NAR. The Olinda Rare Plant Facility will be completed in 06. Site construction was delayed numerous times due to the start of nesting season at the Maui Bird Facility (loud noises may interfere with breeding) and by excessive rainfall at the site. Propagation of rare Maui Nui species has begun with six species growing at lower elevations and will be transferred to Olinda Nursery as soon as greenhouses are erected.

On the Island of Hawaii, rare plant restoration projects continue to focus on protection and restoration of large areas of endangered species habitat, mainly within NARS (Manuka, Puu Makaala, Kipahoe, Puu o Umi). Fencing in Kipahoe NAR provided 1,500 ungulate-free acres for native plant protection and outplanting project. In the past year, over 10,000 individuals were planted within protected areas of the Big Island's NARS, Puuwaawaa, forest reserves, and in numerous silversword enclosures. Over half of this total was rare plant species in addition to common native plants providing infrastructure for future rare plant re-introductions. Volcano Rare Plant Facility produced almost 5,000 threatened/endangered plants and species of concern for Big Island restoration projects. This state-supported facility continues to provide the majority of plants for the Island's restoration projects. Additionally, 20 small enclosures were maintained within forest reserves or in the Puuwaawaa ahupuaa

Over 550 individual rare Kauai plants were outplanted into secure areas across the Island in FY 06. 40 enclosures were maintained for protection from feral ungulates and alien weed species, reduction of ground fuel for fire control, providing protected environment for outplanting and propagule collection from naturally occurring species. Seed banking for *Erythrina sandwicensis* was begun to provide propagules for future outplanting when needed to compensate for damage from the gall wasp. New populations of four rare Kauai species were discovered in addition to a possible new *Dubautia* species in the Na Pali-Kona Forest Reserve. Flagging for Kuia NAR fence began last year and the contract for construction was awarded despite many fiscal challenges. Propagule collections for all rare plant species on the Island and monitoring rare species in the bogs of the Alakai Swamp are ongoing projects on Kauai.

2. COMPLIANCE WITH CHAPTER 42F, HRS, REQUIREMENTS FOR GRANTS AND SUBSIDIES

No grants or subsidies were issued under this aspect of the Program.

3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED

Protecting natural areas and ensuring the future of rare native ecosystems and species requires sustained management actions as described above. Actions such as weed and feral animal control and fire prevention must be conducted over the landscape as feral goats, pigs, deer, and sheep, invasive weeds, and fires do not recognize ownership boundaries. The recent emergence of watershed partnerships on every island has contributed greatly to the State, Federal and private partners' have the potential ability to appropriately manage these large forested areas. However, coordinating and assisting the conservation efforts of these partners presents challenges and adds additional responsibilities on the already understaffed NARS crews.

Still, with short-term federal and state funding, NARS Program has been able to partner with the Pacific Cooperative Studies Unit of the University of Hawaii (UH) to supplement important NARS management work and to assist in the coordination of watershed management actions, including invasive species control, fence construction, field surveys, and rare plant collection, propagation, and outplanting. This partnership with the University is critical, providing learning opportunities to young professionals in the biological sciences, and giving the State much-needed assistance with on-the-ground conservation. In addition, partnerships with other landowners and volunteers provide another method by which NARS Program is working to meet conservation needs.

In addition, Act 156, Session Laws of Hawaii 2005 (Act 156), amended §247-7., HRS, to explicitly provide that funds in NARF could be used for management of NARS. At the same time, Act 156 increased the Conveyance Tax, increasing revenues into NARF. As a result, the 2006 budget for FY 07 increased DOFAW's appropriation from this fund from \$3.3 million to \$10.3 million, of which \$2.5 million was dedicated for natural area reserve management. A portion of this \$2.5 million was earmarked to fund temporary State positions, to support needed on-the-ground fieldwork.

Controlling the threats of invasive weeds and feral animals remains a challenge. Feral animals damage native vegetation, contributing to erosion and damaging watershed capacity. At the landscape level, control of feral animals is possible using a combination of public hunting, exclusion by fences, staff control and aerial shooting. Building and maintaining fences, although effective, is very expensive. For remote areas and areas with steep terrain, aerial shooting is often the only effective method of controlling feral animal numbers. However, implementing aerial control missions remains a challenge due to safety concerns, cost, access, and liability issues. Invasive weeds modify habitat and require constant effort and vigilance to combat effectively. With the dedicated funding provided by NARF, it is anticipated that many of the management needs of NAR can begin to be addressed.

4. STATUS OF PUBLIC HUNTING OPPORTUNITIES

Under the NARS Management Policies, strategies to reduce populations of non-native animals to the lowest possible level are employed. Public hunting continues to be the primary control option in many areas within NARS, although hunting is not managed on a sustained-yield basis. Game control methods (including fencing, trapping, snaring, and aerial shooting) are used as needed in specified areas where public hunting does not afford adequate control to reduce population/activity to the lowest possible level.

5. FINANCIAL REPORT

NARS is financially supported primarily through the State's General Fund, Appropriation 047 (see Table A). In FY 06, expenditures were \$698,329 in personnel costs and \$439,385 in operational costs, totaling \$1,137,714. This funding was supplemented by federal grants and by state funding by way of NARF on a project by project basis.

6. PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR

Where appropriate, reserve management activities will be guided by management plans. Plan implementation will focus on preventing, eliminating or controlling the spread of non-native plants and animals that have a detrimental effect on native ecosystems. Other management considerations will include monitoring, research, public education, and volunteer support. Youth programs that provide hands-on experiences will continue to be a priority. Statewide, partnerships (particularly watershed partnerships) will continue to play an important role in the management of the Reserves, with resources shared to manage across property boundaries.

Plans and management objectives for the next fiscal year include continued work on pending fencing projects; continued collaboration with watershed partnerships to cooperatively manage areas on a landscape level; continued control and removal of feral animals; continued control of habitat-modifying invasive species; update of individual reserve management plans, and the securing of additional permanent dedicated staffing. In addition to regular management activities, several specific projects will be initiated this year, in part due to the Legislature providing state funding for temporary NARS positions.

Hawaii: In FY 07, NARS Program on the Island of Hawaii hopes to significantly reduce animal populations within the completed fenced management units in Kipahoehoe NAR; update and begin implementation of a revised management plan for Manuka NAR (specifically addressing coqui eradication, ungulate removal and more particularly goat control, and fountain grass control); continue work with the Olaa Kilauea Partnership to advance management in Puu Makaala NAR including completion of animal removal in the Wright Road Unit, invasive species control, and rare plant work; contribute towards the adoption and implementation of the Kohala Watershed Partnership management plan, including management priorities for Puu O Umi; participate in finalizing details for the inclusion of Laupahoehoe NAR within the new Hawaii Tropical Experimental Forest; and continue collaboration with the Office of Mauna Kea Management for identifying management needs for Mauna Kea Ice Age NAR.

Maui: In FY 07, NARS program on Maui hopes to continue construction of fencing at Kanaio NAR and initiate updating its management plan; continue working to protect Hanawi NAR through fencing, ungulate control, weed control, and rare species monitoring, in cooperation with EMWP and the Maui Forest Bird Recovery Project; continue construction of fencing at Kahakuloa NAR and remove animals, in cooperation with the WMMWP; remove animals from the recently completed fencing at Puu Alii NAR in cooperation with the National Park Service, update and implement a management plan for Ahihi-Kinau NAR and continue implementation of the Hawaii Tourism Authority grant.

Oahu: In FY 07, NARS program on Oahu will continue construction of fencing projects in Pahole NAR; hold a public hearing on a proposal to add the upper portion of Poamoho section of

Ewa Forest Reserve into NARS; work with US Army in the Makua mitigation process; continue implementation of the successful rare plant program; and continue monitoring of seabird populations at Kaena Point.

Kauai: In FY 07, NARS program on Kauai will implement a fencing project in Kuia Reserve, participate in regional conservation priorities as part of the Kauai Watershed Alliance (e.g., kahili ginger control), and continue implementation of the successful rare plant program

NATURAL AREA PARTNERSHIP PROGRAM (NAPP)

1. DESCRIPTION OF ACTIVITIES AND ACCOMPLISHMENTS

This innovative Program, established by the Legislature in 1991 through Act 326, provides state-matching funds on a 2:1 basis with private funds for the management of natural resources on private lands permanently dedicated to conservation. This Program complements the existing NARS by providing long-term protection and management of unique natural resources on private lands.

NAPP provides financial support for a full range of management activities to protect, restore and enhance significant native resources and geological features. NARS staff administers NAPP, although the private applicant actually carries out all on-the-ground activities. Six-year, long-range management plans provide funding and direction for each NAPP Preserve. Since 1993, a portion of the Conveyance Tax, which is levied each time real estate property in Hawaii is bought or sold, has funded the Program. For more information on NAPP, see www.state.hi.us/dlnr/dofaw/napp/index.html.

KANEPUU PRESERVE

Landowner:

Managing Partner:

Entered NAPP:

Dole Food Company, Inc.

The Nature Conservancy (TNC)

FY 92

The Kanepuu Preserve on Lanai comprises 590 acres in seven distinct units and represents the last major remnant of a dry land forest community, which once covered large portions of Maui, Lanai, Molokai, and Kahoolawe. 10 rare plants, six of them federally listed, have been reported from the Preserve. A subcontractor, Bob Hera, has assisted in management of the Preserve. Protection from axis deer, control of non-native plant species, and fire prevention has been the primary management activities. Kanepuu and Kahue unit boundary fences were checked regularly and repaired. In FY 07, TNC plans to continue ungulate control, fence maintenance, and weed control. Public outreach efforts include a self-guided nature trail.

KAPUNAKEA PRESERVE

Landowner:

Managing Partner

Entered NAPP:

Pioneer Mill Company, Ltd.

TNC

FY 92

This 1,264-acre preserve is a component of regional protection efforts for the important watershed and native ecosystems found in the West Maui Mountains. Containing 11 native communities, 31 rare species of plants (10 federally listed), and four rare snail species, the Preserve's upper elevations are recognized as among the highest quality native areas in the State. The primary management accomplishments for Kapunakea Preserve in FY 06 were: 1) Maintenance of ungulate levels near zero for a sixth consecutive year, 2) Removal of nine pigs, 3) Removal of *Tibouchina herbacea* from intact bog systems, 4) Lower fence boundary repair and strategic fence maintenance, 5) Completion of rare plant surveys which resulted in the mapping of fourteen new rare plant locations, 6) Reduction of fire threats by clearing and maintaining fire break roads, and 7) Completion of fall ungulate monitoring on two transects.

Although ungulate activity levels have been lowered in the past several years, ungulate control efforts remain a high priority in FY 07 to ensure that activity levels remain low, via a subcontract with the West Maui Watershed Partnership Program.

PELEKUNU PRESERVE

Landowner:

TNC

Managing Partner:

TNC

Entered NAPP:

FY 92

The Pelekunu Preserve, located on the north shore of Molokai, is a 5,759-acre preserve established to protect the free-flowing Pelekunu Valley stream system, one of the best in the State. It is also part of a larger regional management effort that provides protection to over 22,000 contiguous acres on Molokai. Pelekunu Stream contains nearly all the native Hawaiian freshwater fish, crustacean, and mollusk species. In addition, 28 rare plants, six endemic forest birds, and two endemic land snail species have been reported from the area. Protection of the watershed by reducing ungulate damage and reducing the spread of non-native plants are the primary management activities. Feral ungulate control and monitoring in the back portion of the preserve remained the primary focus in FY 06. Public hunting continued to be utilized through the Molokai Hunting Working Group. During FY 06, 28 pigs were removed through ground hunting. Public outreach programs continued with the support of interns, Alu Like, and summer youth programs.

In FY 07, TNC will continue to conduct staff-led volunteer hunts along with monitoring for ungulate activity in the Preserve. Weed control efforts will focus on manual control of habitat-modifying weeds like the African tulip tree and investigating ways of incorporating bio-control on *Clidemia hirta*. TNC is helping the Department of Agriculture field-test a suitable bio-control agent for *Clidemia* on private lands near the Preserve. In addition in FY 07, public outreach efforts will continue with public lectures, preserve overlook hikes, and summer youth programs.

PUU KUKUI WATERSHED PRESERVE

Landowner:

Maui Land & Pineapple Co.

Managing Partner:

Maui Land & Pineapple Co.

Entered NAPP:

FY 94

With over 8,660 acres, the Puu Kukui Watershed Preserve forms the core of regional protection efforts of the West Maui Mountains Watershed Partnership's (WMMWP) 48,000 contiguous

acres. 14 native natural communities, two of them rare, are found in the Preserve along with over 40 rare plant species and six endemic species of land snails.

In FY 06, accomplishments included maintaining 80 percent of the Preserve as ungulate-free, continuing ungulate control where ungulates remain (54 pigs removed by public hunters, 25 by staff), inspected and maintained fencing, monitoring of alien threats, invasive weed control, and rare species protection.

Goals for FY 07 include maintaining the existing level of management, continuing to increase the acreage in the Preserve that can be considered ungulate-free, and continuing to participate in the WMMWP and the Maui Invasive Species Committee.

KAMAKOU PRESERVE

Landowner:

Molokai Ranch, Ltd.

Managing Partner:

TNC

Entered NAPP:

FY 95

The 2,774-acre Kamakou Preserve helps increase regional protection efforts for the important watershed and native communities found in East Molokai. 40 of the plant species are rare, of which 23 are listed as federally endangered. In addition, the Preserve protects habitat for five native forest bird and five rare native land snail species. The primary management focus is to prevent degradation of the native forest by reducing feral ungulate damage, limiting the spread of non-native habitat-modifying plants, and preventing wildfire. Since 1998, feral ungulate control activities have utilized volunteer hunters from the Molokai community. Staff and volunteers control non-native plant species and assess management efforts by monitoring transect. Review of alien species prevention protocols with staff, hikers, hunters, volunteer groups, and researchers remains an ongoing activity. These protocols are communicated through direct contact and public outreach programs, including displays at Hoolehua Airport. In FY 06, feral ungulate control activities included: beginning construction of southern boundary fence, researching ways to increase effectiveness of ungulate trapping, live pig trapping (resulting in 19 captures), and volunteer hunting from the Molokai community. Staff and volunteer groups removed *Clidemia*, passionfruit, strawberry guava, New Zealand flax, black wattle, Christmas berry, rose, ginger, Karakanut, and blackberry in the Preserve. TNC staff provided logistical support for several research projects conducted in the Preserve. Public outreach programs continued to be important both on- and off-site.

For FY 07, live trapping of pigs and finishing the southern boundary fence will be the focus of ungulate control efforts. The bulk of staff and volunteer time will be spent on controlling habitat-modifying weeds in the preserve. Other activities will include supporting researchers and conducting community outreach.

MOOMOMI PRESERVE

Landowner:

TNC

Managing Partner:

TNC

Entered NAP Program:

FY 95

This 921-acre preserve on the northwest shore of Molokai contains one of the largest and best

remaining dune ecosystems in Hawaii. Moomomi contains eight rare plant species and one rare native plant community. Green sea turtles, wedge-tailed shearwaters, Laysan albatrosses, and Hawaiian monk seals are known to use the area. In addition, Moomomi contains significant archaeological, paleontological, and cultural resources. In FY 06, trapping of feral cats, mongoose, and rats provided for safer nesting grounds for the steadily increasing population of wedge-tailed shearwaters. Non-native plant control focused on removing kiawe. Community outreach programs included preserve hikes and off-site activities.

In FY 07, staff will continue to conduct predator control and monitoring of the wedge-tailed shearwaters' nesting colony. In addition, staff will also control habitat-modifying weeds and conduct community outreach activities.

WAIKAMOI PRESERVE

Landowner:

Haleakala Ranch Company

Managing Partner:

TNC

Entered NAP Program:

FY 95

This 5,230-acre Waikamoi Preserve helps increase regional protection efforts for the important watershed and native species habitat found in the East Maui Watershed Area. Waikamoi provides habitat for seven native bird species, all of which are federally listed as endangered. 14 native natural communities, two of them rare, are found in the Preserve along with 30 rare plant species. The primary management accomplishments for Waikamoi Preserve in FY 06 were: 1) Repair and maintenance of Waikamoi, and Ko'olau Gap boundary fences, 2) Replacement of 0.9 miles of fence by staff and 2.29 miles of fence by contractor, 3) Removal of 23 pigs within the Preserve, 4) Removal of five deer along the Haleakalā Ranch border, 5) Continuation of control work of ginger, pines, blackwood acacia and other incipient plant species (camphor and holly), and 6) Re-design of East Maui monitoring across the watershed. Another accomplishment in FY 06 included educating 1,300 community members and visitors about the Preserve and enlisting 103 volunteers who contributed over 476 hours of stewardship service.

In FY 07, staff will significantly increase its efforts at removing feral ungulates in the Preserve and other identified core areas of the East Maui watershed. Hikes offered by Haleakala National Park in the Preserve continue to educate the public on the importance of watershed management.

2. COMPLIANCE WITH CHAPTER 42F, HRS, REQUIREMENTS FOR GRANTS AND SUBSIDIES

All grants issued under NAPP were in accordance with the provisions in Chapter 42F, HRS.

3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED

Natural resource protection and management are long-term efforts requiring time and energy commitments not often found in other projects. Restoration projects often take years before results are discernable. Several of the projects funded this year under NAPP, could take years to achieve the desired objectives. It is important to note that management and protection of natural areas, watersheds and native ecosystems need to continue for the long term.

Partnership and community-based management programs have proven to be an effective tool for

leveraging funds and securing stakeholder participation and commitment. Such initiatives also require a concerted effort and often take a long time to establish and implement. NAPP-funded preserves typically form the core of emerging partnerships, in part due to the dedicated state funding. To help with organization, facilitation, and implementation, partnership steering committees, community advisory councils, and facilitated working groups have been established to help management partners address local concerns in the coming years.

4. STATUS OF PUBLIC HUNTING OPPORTUNITIES

On Molokai, the status of public hunting opportunities varies depending on the reserve. Due to safety concerns and the limited resources for administration and enforcement, TNC does not offer a public hunting program at the Moomomi Preserve. In the event DLNR staff determines that major control work needs to be conducted on the deer population, TNC will pursue management in the best interest of the resources. Kamakou Preserve is open for public hunting when it is compatible with management programs and in accordance with the regulations of the adjoining Puu Alii NAR. At this time, NAR and the Preserve are open year-round to hunting of pigs, goats, and axis deer, without a bag limit. During times of extreme fire hazard, unsafe road conditions, or herbicide spraying in areas accessible to the public, portions or all of the preserve may be closed. Pelekunu Preserve continues to utilize staff-organized volunteer ground hunts through the Molokai Hunting Working Group.

On Maui, the status of public hunting opportunities also varies depending on the reserve. At Puu Kukui, the Preserve is open to public hunters by permit 365 days a year, with no bag limit. Limited volunteer hunting opportunities are available at the Waikamoi Preserve. The conservation easement between TNC and Haleakala Ranch allows ranch employees to hunt. Public hunters willing to follow TNC guidelines will be allowed to hunt in Unit 1A of the Preserve on a limited basis (when hunting will not interfere with ongoing management activities, planned guided hikes, and hunting by ranch employees). However, it should be understood that the goal is to remove all ungulates in the Preserve, and no area within Waikamoi Preserve will be considered a sustained yield hunting area. In addition, there are approximately 50,000 acres available to public hunters below the Preserve to meet public hunting needs.

The conservation easement between TNC and Amfac/JMB Hawaii, L.L.C. requires that there be no unaccompanied public hunting in the Kapunakea Preserve. Kapunakea Preserve is closed to hunting with dogs due to an increased snaring effort in the preserve due to dramatic increases of pigs in previously hunted areas. However, TNC staff may accompany public hunters hunting without dogs upon request, on a case-by-case basis. Limited public hunting opportunities that will not interfere with other management are available in coordination with scheduled work trips.

5. FINANCIAL REPORT

NAPP is supported primarily through NARF. In FY 06, state expenditures were \$900,751. As NAPP provides matching funds on a 2:1 basis, these state funds were matched by at least \$450,375 private funds. In actuality, NAPP participants typically provide additional matching dollars for conservation, through additional private funds or through acquisition of federal grants. Table C provides more detailed information on expenditures by individual preserve.

6. PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR

NAPP preserve management activities in FY 07 will be guided by completed management plans. Plan implementation will focus on eliminating or controlling the spread of non-native plants and animals that have a detrimental effect on native ecosystems. Other management considerations will include rare and endangered species protection, monitoring, research, public education and generating community support. Goals for individual preserves are discussed above. After several years of no new NAPP preserve contracts, an application was submitted and processed during FY 06 for the creation of a new NAPP in Kau. The proposed Kau NAPP will be presented to BLNR for review and approval during FY 07.

FINANCIAL CONDITION OF NARF

NARF receives revenues from the Conveyance Tax (25% of total Conveyance Tax revenues) on real estate transactions. In FY 06, revenues into NARF were \$13,893,045 with \$13,611,529 from the Conveyance Tax and \$281,516 from the Investment Pool (See Table B).

In FY 06, expenditures totaled \$3,339,166, representing expenditures of approximately \$1,264,110 for FY 05 encumbrances, and \$2,075,057 of FY 06 encumbrances. Of the FY 06 \$3,300,000 spending cap, all funds were encumbered (thus, approximately an estimated \$1,224,943 of FY 06 encumbrances will be paid during FY 07). Additional information about FY 06 expenditures is reported in Tables C, D, and E.

Due to record revenues, the Department of Budget and Finance (B&F) central services assessment, which counts against the spending cap, lowered the cash available for natural resources protection programs by transferring \$477,763 from NARF in FY 06. However, approximately \$500,000 was deferred to FY 07 to prevent significant reductions in the funding available for natural resource protection. Based on current revenue projections, the assessment is expected to rise again in FY 07.

The unencumbered balance of NARF at the beginning of FY 07 was approximately \$15,486,548 due to the strong real estate market and the number of real estate transactions contributing revenues into the Fund. The spending cap was raised for FY 07 to \$10,031,500, of which \$2,000,000 has been earmarked for coqui frog control. In addition, approximately \$1,017,904 was specifically allocated in the supplemental budget passed by the 2006 Legislature to fund 20 temporary positions and contractual services related to the protection and preservation of NARS and watershed partnerships.

The Conveyance Tax also supports other DOFAW administered programs, including the Forest Stewardship Program and the Invasive Species Program through direct transfers, pursuant to §247-7, HRS, or previous legislative appropriations for invasive species.

OTHER PROJECTS FUNDED BY THE NATURAL AREA RESERVE FUND: WATERSHED PARTNERSHIP PROJECTS & YOUTH CONSERVATION CORPS

1. WATERSHED PARTNERSHIPS PROJECTS

Act 269, Session Laws of Hawaii 2000, provided that NARF could be used to provide year-to-

year funding for watershed partnership projects (projects undertaken in accordance with watershed management plans negotiated with private landowners). Watershed management is an efficient way to manage the natural landscape against threats to the health of the forest and more effectively protect and utilize these areas for the good of Hawaii's citizens.

The first watershed partnership was formed in 1991 on East Maui when several public and private landowners realized the benefits of working together to ensure the conservation of a shared watershed that provided billions of gallons of fresh water to the area. Today, watershed partnerships continue to be voluntary alliances of public and private landowners committed to the common value of protecting forested watersheds for water recharge and other ecosystem services through collaborative management.¹

There are now nine watershed partnerships in the State (Maui-three, Moloka'i-one, Kaua'i-one, Hawai'i-two, O'ahu-one, and Lāna'i-one) involving over 45 private landowners and 24 public agencies that cover (including several NARs and NAPPs) close to 1,000,000 acres (a quarter of the State's land). Not only are these areas vital recharge regions for Hawaii's underground aquifers and a dependable source of clean water for its streams and people, they are also home to the last remaining native ecosystems in Hawai'i and house thousands of native species of animals and plants found nowhere else on Earth. In addition to providing such services, these areas also provide an opportunity for the education of children about Hawaii's unique environments and conservation related jobs.

Most management actions are habitat based and revolve around combating the main threats facing watersheds - feral ungulates (hooved animals) and invasive species. Examples include ungulate removal, invasive species control, outplanting, and restoration. Watershed partnerships are critical to protecting watersheds and the unique biodiversity found within across large landscapes and different ownership boundaries. The benefits of collaborative management practiced under watershed partnerships are many: 1) Management actions address large landscapes and threats affecting core watershed areas and multiple habitats and species; 2) They leverage limited dollars for maximum benefits and allow the pooling of resources as well as expertise to reduce redundancy in efforts (partnerships effectively leverage state dollars with federal, county, and private funds/match, often 1:1); 3) Provide capacity building for landowners, particularly private, to engage in watershed protection; and 4) Actions conserve other ecosystem services such as native habitats/species, recreation, culture, education, and jobs.

Highlights of Watershed Partnership Activities, Accomplishments, and Challenges in FY 06, Plans and Management Objectives for FY 07

In FY 06, a total of \$668,980 was funded to support major watershed management activities on five islands covering over 120,000 acres. In FY 07, as a result of an increase in conveyance tax funds and approval by the Legislature to increase the budget ceiling, a total of \$3.3 million was allocated to continue to support existing watershed management initiatives under the Watershed Partnerships Program as well as fund new initiatives to enhance broader watershed management activities across the Islands of Kauai, Oahu, Maui, Molokai, and Hawaii.

Kauai Watershed Alliance (KWA) – 143,000 acres

¹ In a 1999 University of Hawai'i study on valuating such ecosystem services provided by Hawaii's watersheds, the Koolau Mountains on Oahu alone were valued at \$7.4-14 billion dollars.

In FY 06, a total of \$70,000 was awarded to KWA through the Watershed Management Grant (WMG) Program (funded through NARF). The funding provided also leveraged an additional \$80,000. The award supported a fencing project for Hawaii's only remaining low elevation bog as well as core watershed areas in the Alakai, weed threat identification in same core watershed areas, and target weed (kahili ginger and Australian tree fern) control. Accomplishments include:

- Over 100 acres have been treated for kahili ginger in two core watershed management areas
- More than 2,704 acres in KWA identified management areas have been surveyed and weed and ungulate data has been analyzed to prioritize and direct management actions
- Trial spray ball operations as a tool to combat Australian tree fern control have been developed and are now ready for experimental usage
- Conducted outreach with community members to discuss fencing project for bog, including interviews and presentations to key community groups.

For FY 07, KWA received a grant of \$161,629 for a kahili ginger containment project and to begin the process of a fencing project to protect 2,000 acres of core watershed areas. Anticipated leveraged match \$100,000. This grant will continue to support KWA's aims to prevent the spread of kahili ginger in 500 acres of core watershed management units on Kauai through intensive aerial surveys, Geographic Information System mapping and database management, on-the-ground management and treatment, monitoring, and surveys for other invasive weeds such as Australian tree fern and strawberry guava. Funding for both FY 06 and FY 07 support implementation of the management plan that has been developed by KWA for future preservation of Kauai's watersheds.

Koolau Mountains Watershed Partnership (KMWP) – 97,100 acres

In FY 06, a total of \$95,500 was awarded to KMWP on Oahu through the WMG Program with leveraged match at \$137,341. Funding was used to support coordination of KMWP activities as well as completion of a fencing project. Accomplishments include:

- Completion of Helemano fencing project to enclose 200 acres of native wet forest as well as endangered snail and plant species from the threat of pigs
- Support Coordinator for KMWP, who is responsible for implementing the management plan and priority projects. With the awarded funding, the Coordinator was able to accomplish the following:
 - Work on development of a comprehensive ungulate management strategy for the KMWP area
 - Initiate Northern Koolau Hunting program
 - Complete Manoa/Makiki community-based native species outplanting programs
 - Outplant 20,000 plants in Manana Valley for a fire restoration project
 - develop landscape level, site-led weed survey to determine priority areas for management actions.

Challenge faced is inconsistent funding with different funding programs that is year-to-year which impedes continuity of projects and stable implementation of the management plan.

For FY 07, KMWP received \$326,651 to continue to support implementation of their

management plan via coordinator support, completion of priority invasive weed surveys, and specific priority projects such as ungulate control (EA/Conservation District Use Application for the lower Peahinaia fence, controlled hunts through hunting program), weed management (develop management strategy, complete aerial and ground surveys, mapping), habitat restoration and erosion control (20 acre burn site rehabilitation), and biological surveys (priority area identification). Anticipated match is \$292,510.

East Maui Watershed Partnership (EMWP) – 100,000 acres

In FY 06, a total of \$138,500 was provided to EMWP with leveraged match at \$69,500. This funding supported continued management actions to protect core watershed areas in East Maui as well as outreach and education efforts with schools and communities. Accomplishments include:

- Completion of installation of 1.5 miles of fence in the Koolau Forest Reserve, which will help to enclose 12,000 acres of critical watershed area for management actions (e.g. ungulate control and invasive weed species removal)
- Determination of one mile of future fence lines
- Inspection and continued maintenance of over five miles of already constructed fences
- Monitoring and control programs along transects established for these purposes, with an additional four new monitoring transects developed
- Outreach and education (e.g. visits to schools and presentations to communities) to 875 students and community members as well as participation in community events such as Career Day at Lahainaluna High School, Mohala Mai Concert, and Earth Day. EMWP also hosted an art contest featuring the East Maui Watershed.

The biggest challenge was timely delivery of awarded grants by not just the State but other funding programs (e.g. county, Federal). There is a significant time lag between grant awards and actual delivery of grant funds due to governmental fiscal processes and policies and insufficient state staffing levels in such offices. This delay in fund distribution can lead to delays in projects and potential non-payment of staff.

For FY 07, EMWP received \$447,000 to continue to support implementation of the management plan as well as outreach and education efforts. Anticipated match is \$270,000. Awarded funding will support feral animal and invasive species control in 7,000 acre core area; finalization of a draft EA and monitoring plan as well as updated management plan; reduction of animals/invasive weeds in the watershed; up to 20 presentations and hikes to at least 10 schools reaching over 750 students and community members; 10 miles of fence inspection and maintenance; monitoring of threats over 53,000 meters of scouting trails; and up to 10 missions of aerial shooting for feral cattle in the Koolau Forest Reserve which covers 50,000 acres.

Leeward Haleakala Watershed Restoration Partnership (LHWRP) – 43,175 acres

In FY 06, a total of \$50,000 was provided to LHWRP with leveraged match of \$150,000. The funding was used to support the development and completion of a management plan.

Accomplishment was the final draft of the management plan which was developed through surveys, biological and watershed assessments, mapping, discussions with landowners and other knowledgeable experts such as government agencies, non-profit organizations, community leaders, and cultural persons.

Similar to EMWP, the biggest challenge for LHWRP was timely delivery of the awarded grant. A significant lag time between grant awards and actual delivery of grant funds (five months) due to governmental fiscal processes and policies and limited staff. This delay in fund distribution can lead to delays in project start.

For FY 07, LHWRP received \$380,000 to continue to support implementation of priority projects and the finalization of the draft management plan. The anticipated match is \$437,200. Awarded funding will go toward the hiring of four new field crews to work on koa restoration, supervise volunteers, conduct invasive species management, fencing to create 7,700 acres protected watershed forests, plant propagation, establishment of plant demonstration project exclosures for koa restoration, and development of Quickbird digital imagery to better understand the current status of the resources in the area, particularly invasive plants to develop a vegetation monitoring system.

West Maui Mountains Watershed Partnership (WMMWP) – 50,000 acres

In FY 06, a total of \$30,000 was provided to WMMWP with leveraged match of \$130,000. Funding went to support continued implementation of developed management plan.

Accomplishments include:

- Developed an animal control database reflecting information gathered through monitoring of transects. The database will allow staff to more effectively monitor control efforts and direct on-the-ground management actions
- Built strategic fences in the Hahakea Gap as well as Hanaula management unit to address ingress issues from feral ungulates into the area
- Surveyed monitoring transects established to inform on animal disturbance, invasive weed incursions, and rare plant identifications.

For FY 07, WMMWP received \$300,000 to continue to support implementation of their management plan as well as development of new outreach and education efforts. Anticipated match is \$200,000. Major activities will include feral animal management (particularly preventative measures for axis deer which have not yet reached the West Maui Mountains, animal control and fencing, eight miles of fence inspection and maintenance, and transect monitoring), invasive weed combatment (mapping of weeds found, monitoring spread or establishment of new weeds, development of a database to collect species and control method and removal and acres surveyed/controlled), rare species monitoring; illegal dirt bike management (barricades established, informational signs developed, and trail recovery); and develop outreach materials (website, brochures and other informational products, increased participation in community events).

East Molokai Watershed Partnership (EMoWP) – 25,000 acres

In FY 06, a total of \$20,000 was awarded to EMoWP through the WMG Program. Leveraged match for this funding was \$40,000. Funding was to support implementation of the management plan with priority activities involving feral ungulate control (monthly helicopter assisted hunts with community volunteer hunters, aerial shooting, pig trapping), fencing (Kawela fence to connect existing Kamalo and Kapualei fence), invasive weed control (quarterly), and monitoring of resources and threats (semiannual). These activities will also benefit East Molokai's south shore fringing reef by reducing sedimentation found in streams due to denuded vegetation as a result of ungulate impacts. Accomplishments include:

- 2.1 miles (or 60% of the fence) completed for the Kawela fence

- Three helicopter assisted hunts yielded 116 ungulates, with a total of 266 goats for the year which combined ground hunts as well
- 3.5 fence miles inspected and repaired
- Aerial survey of goat populations provided updated figures to guide management actions
- Beginning of a strategic fire management plan for the watershed area
- Treatment of priority invasive blackberry populations on 14.5 acres
- Support United States Geological Survey research initiative, Ridge to Reef, which analyzes impacts of management actions in watersheds and affects on nearshore waters, streams, and coral reef.

Challenges faced concerned the delay in fencing of the Kawela fence unit due to the filing of a contested case as well as suspension of aerial shooting efforts due to DLNR's revising of its aerial shooting policy (no actions can occur until the revised policy is finalized).

For FY 07, EMoWP received \$75,000 to continue to support implementation of their management plan, mainly invasive weed species removal, commencement of aerial shooting of goats to lower goat population impacts on native vegetation recovery, weed surveys for Kawela/Kamalo, and reduce blackberry and pine populations in key watershed areas. Anticipated match is \$125,000.

Kohala Watershed Partnership (KWP) – 68,000 acres

In FY 06, a total of \$23,000 was awarded to KWP through the WMG Program. Leveraged match for this funding was \$18,000. The awarded grant was to support a fencing project to keep feral cattle out of primary watershed areas as well as preparation for developing a draft EA and related outreach and education for the draft management plan. Accomplishments include development of a final draft management plan, hosting several public open houses throughout the Kohala region to share the draft management plan with communities and to gather community input, and beginning of the draft environmental assessment based on these outreach initiatives. Additionally, fence alignments were conducted to determine fence lines as well as surveys of the feral cattle populations for project area.

For FY 07, KWP received \$145,000 to continue to support finalization and implementation of their management plan through the hiring of a coordinator to lead implementation of priority projects such as fence construction (part of three miles) at Kaneaa (Parker Ranch) to control feral cattle from 400 acres of watershed area; stream monitoring at Waiulaula to provide baseline information regarding water quality and nearshore waters of this watershed, identify relative contributions of sediments and pollutants from different land covers, identify types/sources of polluted runoff, generate pollutant load reduction estimates; trail/fence/cabin maintenance; rare plant outplanting, and invasive weed control.

Olaa-Kilauea Partnership (OKP) – 567,532 acres

In FY 06, a total of \$75,980 was awarded to OKP through the WMG Program. Leveraged match for this funding was \$150,000. Grant funding was used to support the following accomplishments:

- Expansion of existing partnership into the Three Mountain Alliance, nearly doubling the amount of acreage covered under this partnership, through development of new memorandum of understanding
- Continuation of ongoing projects such as the Upper Keauhou Ranch fence construction (project completed), Upper Keauhou and South Boundary Units ungulate control (ongoing), annual forest bird surveys (completed), and Keauhou Ranch Restoration (ongoing) – all of which protect a core 36,000 acre area
- Tracking/control of feral cattle in the Kau and Kapapala areas. Partners are working together on radio-collaring cattle to make control more effective and sharing information about cattle movements. DOFAW is providing radio collars and helicopter time, and the National Park Service will provide staff to dart and radio collar cattle and provide telemetry support
- Organizing and consolidating data, doing weed surveys and developing a weed control strategy for the Olaa Kilauea Management area that will also form long-term weed management strategies for the expanded partnership
- Coordination of fire management plans (North Kona and Keauhou) and developing joint projects at Keauhou Ranch (e.g. maintaining fuel breaks, improving fire planning, development of green fuel break, access agreements, water and gate access) for expanded partnership area.

For FY 07, OKP received \$358,758 to continue implementation of their priority projects and expansion of partnership into the Three Mountain Alliance. Anticipated match is \$263,653. The awarded funding will go toward supporting the Coordinator to lead implementation of projects; watershed management efforts in the Kau/Kapapala area (e.g. cultural assessment and archeological surveys); ongoing projects in OKP areas such as fence maintenance/ungulate control/bird surveys to protect core 36,000 acres; invasive weed control (strategic plan development and implementation); feral cattle control in Kau /Kapapala and South Kona Forest Reserves; environmental education and outreach including teacher workshops, volunteer coordinator, and public service announcements.

Additional projects supporting watershed management activities

Additional projects that more broadly support watershed management activities in FY 06 involved supporting the network of stream and rain gauges found throughout the State that monitor water and stream levels to inform on water quantity and quality data critical for measuring success and efficacy of watershed management activities (\$91,000). Funding was also provided for the coordination and implementation of an annual watershed symposium, which brings together landowners, and practitioners to learn lessons and problem solve issues facing watersheds in Hawai'i (\$10,000). Funding was also provided to support the Coordinator at the PuuWaaWaa Ahupuaa Preserve (\$65,000).

For FY 07, additional projects funded to support broader watershed management initiatives include continued funding for the annual watershed symposium (\$10,000), stream and rain gauges support (\$132,000), formal development of a DOFAW watershed partnerships program (\$79,998), dry and mesic forest restoration projects on Maui and Hawai'i (\$180,000), native habitat restoration project at PuuWaaWaa Ahupuaa Preserve (\$8,964), assessment study of potential development of a Mauna Kea Watershed Partnership (\$25,000), and support for the development of management plans for state forest reserves (\$60,000). Additionally, \$610,000 will be used for 20 state temporary positions developed to enhance state staff capacity (which is

currently severely limited and insufficient) to conduct watershed management activities with the watershed partnerships and support implementation of the management plans jointly developed.

2. YOUTH CONSERVATION CORPS AND PUBLIC OUTREACH

An important aspect of DOFAW's education and outreach efforts is the Youth Conservation Corps (YCC), which is partially funded by NARF. YCC is an ongoing program that provides training and hands-on learning opportunities for high school and college-aged youth. Participants spend seven weeks working in small teams with natural resource managers throughout the State. In 2006, the Corps members contributed approximately 20,000 volunteer hours working on projects such as endangered species restoration; trail maintenance, out-planting, species monitoring, and invasive plant removal. The 2006 Program consisted of seven teams on five islands including Oahu, Kauai, Maui, Molokai and Hawaii. A total of 72 youth participated. The Program lasted 6 and 1/2 weeks plus one week of training, including a team trip to Kahoolawe for each team. For more information on YCC, see <http://www.hawaiiycc.com> Other partners supporting the program include Kamehameha Schools, the Hawaii Department of Health, Clean Water Branch and the U.S. Environmental Protection Agency, among others.

The year-round component to YCC is operated as an Americorps program. The Program allows young adults to gain entry-level experience working alongside managers in the field. The Program was intended to serve as an extension of the summer YCC Program and provide more in-depth training for youth interested in pursuing a career working in the natural resources conservation field. In 2006, DOFAW enrolled a total of nine full-time members (1700 hrs each) and five part-time members (900 hrs each) committing to work for a year.

YCC is one part of DOFAW's Public Outreach, Youth Activities, and Community Involvement Program, a statewide effort to improve awareness and understanding of Hawaii's forests, wildlife, and watersheds and threats to these resources such as invasive species and fire. Components of this effort have included printed materials such as books and posters as well as multi-media exhibits and hands-on education and outreach programs.

During FY 06, DOFAW produced two new wildlife posters "Forest Birds of Hawaii" and "Open Country and Wetland Birds of Hawaii." These pictures featured the artwork of Ram Papish and informed the public about each bird's unique qualities, habitat and relationship to their ecosystem. An accompanying teacher's guide was also printed, which aligned to current Hawaii Content and Performance Standards. In addition, DOFAW printed another new teacher's guide titled "A Forest Is More Than Trees." This Guide provides a resource for teachers to engage students in learning about tropical forests in Hawaii and globally. These Guides along with the Nene Guide printed last year and the two new posters were mailed out to every school in Hawaii and to individual teachers as requested. These materials were produced through funding from the US Department of Agriculture (USDA) Forest Service, NARF and assistance from Americorps.

During FY 06, DLNR published two editions (Summer and Winter) of the DOFAW newsletter "Na Leo O Ka Aina." The Newsletter can be viewed online at <http://www.state.hi.us/dlnr/dofaw/newsletter/index.htm> Electronic and printed versions were created. Printed copies were sent primarily to schools, libraries, other agencies and individuals

who requested the printed version. Total distribution was about 1,500 to 2,000 newsletters.

With the help of Americorps interns local middle schools and private individuals, the native plant and community garden located at the Kalanimoku Building on Oahu was revitalized. The garden was stripped of weeds, covered with mulch and planted with native plants. A new picnic table/umbrella and interpretive signs were added to make the garden a place to relax and learn about native plants in the center of urban Honolulu.

An additional outreach component for DOFAW includes maintaining its website to provide up-to-date information and resources about the many DOFAW programs and services:
www.dofaw.net

During FY 07, DOFAW will be working in partnership with the Department of Education (DOE) to produce a teacher's manual for natural resources education that meets current standards and addresses topics of importance in today's Hawaii. DOFAW has contracted DOE to produce the resource utilizing existing materials that will be updated and aligned to current standards as needed by current and retired DOE teachers. Following completion of the guide, a series of teacher training workshops will be organized by DLNR and DOE to facilitate use of the materials by teachers. This effort is supported in part by a grant from the USDA Forest Service and NARS staff supervision.

DOFAW is also anticipates requesting the addition of four district-based Outreach and Education positions in 2009. These positions would provide outreach to the general public about natural areas and forest and wildlife resources. Having outreach staff dedicated to each island branch would allow for more hands-on outreach and in-depth programs such as service projects, guided field trips, and presence at local events such as earth day. The positions would also act as liaisons between DOFAW and local schools, providing classroom programs and field-trip opportunities. They would also be able to build relationships with local constituents to help increase support for DLNR programs. These positions would improve communication with the public and make our agency more accessible.

CONCLUSION

Detailed project plans and accomplishment reports for the NARS, NAPP, Watershed Partnership Program, and YCC are available through links from DOFAW websites or from the:

Natural Areas Program Manager
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, HI 96813
Telephone: 587-0054
Fax: 587-0064
E-mail: randall.w.kennedy@hawaii.gov

LNR 407 NATURAL AREAS MANAGEMENT BUDGET SUMMARY FY 06

Table A: FY 06 Natural Area Reserve System Expenditures (General Fund Appropriation 6-06-047)

Total = \$1,137,714

NARS 'A' Personnel Expenditures FY 06 (22 positions) = \$ 698,329

NARS 'B' Operating Expenditures FY 06 = \$ 439,385

FY 07 Natural Area Reserve System Allocation (General Fund Appropriation 6-07-047)

Total = \$1,202,004

NARS 'A' Personnel Expenditures FY 07 (22 positions) = \$ 698,329

CB adjustment = \$ 64,290

Total = \$ 762,619

NARS 'B' Operating Expenditures FY 07 = \$ 439,385

Table B: Natural Area Reserve Fund Revenues FY 06 (S-06-342)

Total = \$ 13,893,045

Revenue Source	Timeframe	Amount
FY 06 Conveyance Tax transfers	7/1/2005 – 6/30/2006	\$13,611,529
Investment pool revenues	7/1/2005 – 6/30/2006	\$ 281,516
	Total	\$ 13,893,045

Table C: NAPP Expenditures FY 06

Total = \$900,751

NAPP Preserve	Expenditures FY 06
Kanepuu	\$ 30,107
Kapunakea	\$ 90,663
Pelekunu	\$ 107,254
Puu Kukui	\$ 208,911
Kamakou	\$ 182,494
Moomomi	\$ 38,225
Waikamoi	\$ 242,026
Administrative costs	\$ 1,071

Table D: Youth Conservation Corps Expenditures FY 06

Total State = \$ 409,838

Activity	State NARF funds	Federal and private contributions
YCC/Americorps student stipends and fringe	\$150,000	\$100,634
Program coordination	\$ 79,800	\$ 14,500
Program costs (e.g., operations, training, transportation, marketing, logistical support)	\$204,038	\$ 10,000
Total	\$433,838	\$125,134

Table E: NARF Expenditures FY 06

Total = \$3,339,166

Location	Project	FY06 Expenditures
Statewide	B&F Central Services Assessment	\$477,763
Statewide	NARS Management	\$ 427,218
Statewide	NAPP	\$ 900,751
Statewide	Watershed management	\$1,076,345
Statewide	YCC/Americorps/youth programs	\$ 433,838
Statewide	Land Legacy Program	\$ 12,754
Statewide	General administration	\$ 10,497